Warm Up #12-3

1. Mario bought land in Oregon for $40,000. It will increase in value 5% each year.

a) How much will it be worth in 5 years?

b) He has to pay 1% in taxes each year. How much tax will he pay in the 5th year?

2. Thanksgiving drawing in the Thursday space!

## Finish up and staple up!

Classwork Week 12

Warm up

5E.1 p. 141
5E.2 p. 144
} last week on Series

Pink WS: Logic

(with pgs. 234, 235, 238)

HW Questions:

8B.1 p.236, # 1 - 3

8B.2 p.238, # 1 - 3
(bc only for each)

## 8C.1 p.242, # 1, 2, 4cdf, 7 - 9

**EXERCISE 8C.1**

**1** Construct a truth table for the following propositions:

**a** $\neg p \wedge q$ **b** $\neg(p \veebar q)$ **c** $\neg p \vee \neg q$ **d** $p \vee p$

**2** For the following propositions:

**i** construct a truth table
**ii** determine whether the proposition is a tautology, a logical contradiction, or neither.

**a** $\neg p \wedge \neg q$ **b** $(p \vee q) \vee \neg p$ **c** $p \wedge (p \veebar q)$ **d** $(p \wedge q) \wedge (p \veebar q)$

**7** **a** Complete the truth table below:

| $p$ | $q$ | $p \veebar q$ | $q \wedge (p \veebar q)$ | $(p \veebar q) \vee p$ |
|---|---|---|---|---|
| T | T | | | |
| T | F | | | |
| F | T | | | |
| F | F | | | |

**b** Consider the propositions $p$: $-3 \leqslant x \leqslant 7$ and $q$: $x \geqslant 2$.
Find the values of $x$ which make the following propositions true:

**i** $p \veebar q$ **ii** $q \wedge (p \veebar q)$ **iii** $(p \veebar q) \vee p$

**8** Explain why:

**a** any two tautologies are logically equivalent

**b** any two logical contradictions are logically equivalent.

**9** What can be said about:

**a** the negation of a logical contradiction

**b** the negation of a tautology

**c** the disjunction of a tautology and any other statement?

**4** Use truth tables to establish the following logical equivalences:

**c** $p \vee (\neg p \wedge q) = p \vee q$

**d** $\neg(p \veebar q) = p \veebar \neg q$

**f** $\neg p \veebar (p \vee q) = p \vee \neg q$

| p | q | | | | |
|---|---|---|---|---|---|
| T | T | | | | |
| T | F | | | | |
| F | T | | | | |
| F | F | | | | |

# HW: IB Exam Practice

# 2016 Paper 1